

Response to Public Comment

---National Pollutant Discharge Elimination System--- Regulations Addressing Cooling Water Intake Structures

(40 CFR Parts 9, 122, 123, 124, and 125)

Report of All Comments

By Subject Matter

**US EPA
1200 Pennsylvania Ave NW
Washington, DC 20460**

March 29, 2004

---National Pollutant Discharge Elimination System---
Regulations Addressing Cooling Water Intake Structures
for Phase II Existing Facilities

TABLE OF CONTENTS

By Subject Matter

Subject Code	Description	Page
SUP	General statement of support	1
OPP	General Statement of Opposition	27
NEW	Comment on new (Phase I) facility rule	49
SMALL	Comment on Phase 3 rule	<no comments>
MISC	Miscellaneous comment	110
1.0	Introduction	132
1.01	Comment period	134
2.0	Legal Authority and Purpose of Today's Proposal	155
2.01	Authority to modify 40 CFR	157
2.02	Consent Decree	<no comments>
2.03	Purpose of Rule (General, incl. bckgrd., history)	164
2.04	EPA's legal authority to:	175
2.04.01	Require closed cycle cooling	195
2.04.02	Apply 316(b) before a det. of impact/AEI	218
2.04.03	Define BTA as anything less than closed cycle	233
2.04.04	Use cost-benefit tests	263
2.04.05	Implement a site-specific alternative	289
2.04.06	Restoration measures in place of technologies	307
3.0	Scope and Applicability of Proposed Rule	322
3.01	Definition: Existing Facility	326
3.02	Definition: Cooling Water Intake Structure	353
3.03	Definition: Waters of the U.S.	358
3.04	Applicability to facilities subject to NPDES permit	391
3.04.01	RFC: Application to "unique" facilities	402
3.05	Facilities not covered by today's proposal	413
3.05.01	Offshore oil & gas and manufacturing facilities	<no comments>
3.06	RFC: Cooling water withdrawal thresholds of 25%	424
3.06.01	Withdrawal threshold of 50 MGD	432

---National Pollutant Discharge Elimination System---
Regulations Addressing Cooling Water Intake Structures
for Phase II Existing Facilities

TABLE OF CONTENTS

By Subject Matter

Subject Code	Description	Page
3.06.02	Cogeneration facilities	453
3.07	Special definitions	456
4.0	Summary of Data Collection Activities	<no comments>
4.01	Source data used by EPA	473
4.01.01	RFC: Effects of re-powering on intake flow	485
4.01.02	Survey questionnaires and data	<no comments>
4.01.03	Information provided to EPA by stakeholders	496
5.0	Char. of Industries Potentially Subject to Prop. Rule	499
6.0	Environmental Impacts	503
6.01	Overview of I & E effects on organisms	509
6.02	Impacts of multiple intake structures on watersheds	612
6.03	Impacts of CWIS on impaired waterbodies	621
6.04	Impacts of CWIS at ecosystem level (popn. vs. indiv.)	627
6.05	Impacts to T&E species	649
6.06	Impacts of modified or re-sited CWIS	<no comments>
6.07	Documented facility examples of CWIS impacts	664
6.08	Non-aquatic impacts	692
7.0	Best Technology Available (BTA)	714
7.01	RFC: Three-option framework for determining BTA	718
7.01.01	Option 1--Demonstrate existing BTA	780
7.01.02	Option 2--Implement performance requirements	783
7.01.03	Option 3--Site-specific determination	795
7.02	Performance standards	901
7.02.01	RFC: Req. greatest possible reduction within range?	1095
7.02.02	RFC: Directors set performance levels for a facility?	1097
7.02.03	Technology Efficacy Database	1101
7.03	Available I&E technologies	1113
7.03.01	Sample facilities/technologies	1226

---National Pollutant Discharge Elimination System---
Regulations Addressing Cooling Water Intake Structures
for Phase II Existing Facilities

TABLE OF CONTENTS

By Subject Matter

Subject Code	Description	Page
7.04	Streamlined Technology Option	1236
8.0	Waterbody Type	1270
8.01	Proposed standards for FW rivers and streams	1273
8.02	Proposed standards for lakes and reservoirs	1284
8.03	Proposed standards for Great Lakes	1303
8.04	Proposed standards for tidal rivers and estuaries	1318
8.05	Proposed standards for oceans	1327
9.0	Costs	1330
9.01	Facility & firm-level costs/Econ. Practicability	1420
9.02	Economic impacts on consumers/households	1462
9.03	Mkt-level impacts/Reliability/EO 13211: Energy Effects	1476
9.04	Cooling system costs (e.g., dry, wet, recirculating)	1622
9.05	Intake structure technology costs (e.g., screens, etc)	1810
9.06	Burden to facilities (general)	1817
9.07	Cost Modules	1826
10	Benefits	<no comments>
10.01	Ecological Evaluation Methodology	1847
10.01.01	Ecological Risk Assessment	1858
10.01.02	Methods to Evaluate I&E	1863
10.01.02.01	EPA methods: age 1 equiv, yield, prod foregone	1922
10.01.02.02	Fish Population Modeling	2025
10.01.02.03	Ecosystem/Food Web Modeling	2062
10.01.02.04	Assumptions about I&E survival	2064
10.01.03	Data Issues	2089
10.02	Benefit Estimation Methodology	2104
10.02.01	Recreational Fishing Benefits	2302
10.02.01.01	General/Benefit Transfer	2318
10.02.01.02	Random Utility Model (RUM)	2335

---National Pollutant Discharge Elimination System---
Regulations Addressing Cooling Water Intake Structures
for Phase II Existing Facilities

TABLE OF CONTENTS

By Subject Matter

Subject Code	Description	Page
10.02.02	Commercial Fishing Benefits	2353
10.02.03	Use of Replacement Costs (HRC and hatchery-based)	2415
10.02.04	Valuing Forage Species (incl non-use and non-landed)	2519
10.02.04.01	Peconic-based approach	2629
10.02.05	Valuing CWIS effects on other species	2703
10.02.06	General Comments on Valuation Approaches	2709
10.02.06.01	Stated preference (Contingent Valuation)	2717
10.02.06.02	Revealed preference	2723
10.02.07	Regional Benefits Approach	2736
10.03	Case Study Specific Comments	2760
10.03.01	Delaware	2771
10.03.01.01	Salem	2787
10.03.01.02	All Other Facilities	<no comments>
10.03.02	Ohio Watershed	2851
10.03.03	Tampa Bay	2881
10.03.03.01	Big Bend	<no comments>
10.03.03.02	All Other Facilities	<no comments>
10.03.04	San Francisco Bay Delta	2897
10.03.05	Brayton Point	2908
10.03.06	Pilgrim and Seabrook	2950
10.03.06.01	Pilgrim	2958
10.03.06.02	Seabrook	2966
10.03.07	Great Lakes	2968
10.03.07.01	J.R. Whiting	2974
10.03.07.02	Monroe	2981
10.03.08	Extrapolation Methods	2999
10.04	National Benefits	3041
10.04.01	Extrapolation of Case Study Ben. to National Level	3057

---National Pollutant Discharge Elimination System---
Regulations Addressing Cooling Water Intake Structures
for Phase II Existing Facilities

TABLE OF CONTENTS

By Subject Matter

Subject Code	Description	Page
10.05	RFC: Cost-benefit in proposed provision 124.95	3071
10.06	RFC: Burden estimates	<no comments>
10.06.01	RFC: Incorp. costs/benefits without burden on Dir.	3094
10.06.02	RFC: Streamlining criteria in a reg. or guidance	<no comments>
10.07	RFC: Cost: benefit ratio for site-specific BTA?	3102
10.07.01	RFC: Appropriateness of “wholly disproportionate”	3123
10.07.02	RFC: Appropriateness of “significantly greater”	3132
10.07.03	RFC: Test: benefits should justify the costs	3197
10.07.04	RFC: Appropriateness of and tests for variance	3267
10.08	RFC: “Significantly greater” for eval. alt. req.	3275
10.09	RFC: Does today’s proposal allow for ‘backsliding’	3287
10.1	General: cost tests	3294
11.0	Role of Restoration	3340
11.01	RFC: Proposed use of restoration measures	3376
11.02	RFC: Restoration measures as supplement only?	3525
11.03	RFC: Appropriate spatial scale for restoration	3532
11.04	RFC: Consultation with wildlife agencies	3548
11.05	RFC: Info. to include in a restoration plan	3556
11.06	RFC: Performance/effectiveness of restoration	3560
11.07	RFC: Restoration above BTA level	3650
11.07.01	RFC: Consideration of additional env. Benefits	3658
11.08	RFC: Habitat conservation as part of restoration	3668
11.09	Role of restoration in Phase I new facility rule	<no comments>
11.1	RFC: Discretionary restoration approach	3680
11.11	RFC: Mandatory restoration approach	3690
11.12	RFC: Restoration banking	3701
12.0	Impingement and Entrainment Assessments	3710
12.01	RFC: Will I&E study supply sufficient information?	3720

---National Pollutant Discharge Elimination System---
Regulations Addressing Cooling Water Intake Structures
for Phase II Existing Facilities

TABLE OF CONTENTS

By Subject Matter

Subject Code	Description	Page
12.02	RFC: Monitoring frequencies	3728
12.02.01	RFC: Uncertainty in I&E mortality estimates	3740
12.03	RFC: Entrainment vs. entrainment mortality	3744
12.03.01	RFC: Documented entrainment survival rate studies	3808
12.03.02	Entrainment survival chapter	3830
13.0	More Stringent Requirements	3853
14.0	5% Flow Threshold in Rivers	3874
14.01	RFC: 5% threshold and supporting documents	3876
14.02	RFC: Alt. thresholds for entrainment (E) controls	3897
15.0	State or Tribal Alternative Requirements	3903
15.01	RFC: State or Tribal alts. achieve comparable perf.	3907
15.01.01	Definition and geographic scale of a watershed	3914
15.02	RFC: States to demonstrate comparable env. perf.?	3917
15.03	RFC: Watershed boundaries within political?	3924
16.0	Capacity Utilization	3927
16.01	RFC: Regulating limited capacity facilities	3932
16.02	RFC: Alternative standards for I mortality only	3960
17.0	Other technology-based opt. under consideration	3962
17.01	RFC: Other proposed provisions	3970
17.02	Option: Reduce capacity comm. with closed-cycle	3973
17.03	Option: Technol. to reduce I&E regardless of WB type	4001
17.03.01	Ex. facilities converted to closed-cycle	4004
17.03.02	RFC: EPA rationale to not require closed-cycle	4011
17.03.03	Benefits of reduced intake capacity	4039
17.04	Option: Closed-cycle for oceans, tidal rivers or estuaries	4060
17.04.01	Option: Ocean/tidal facilities with large intake vol.	4065
17.05	Option: I&E reduction without regard to WB type	4067
17.06	Option: Site-specific determination of BTA	4072

---National Pollutant Discharge Elimination System---
Regulations Addressing Cooling Water Intake Structures
for Phase II Existing Facilities

TABLE OF CONTENTS

By Subject Matter

Subject Code	Description	Page
17.06.01	Sample site-specific rule (p.17159-61)	4134
17.07	Option: Site-specific based 1977 Draft Guidance	4151
17.08	Option: UWAG's recommended approach	4162
17.09	Option: PSEG site-specific alternative	4210
18.0	Discussion of Site-Specific Approaches	4220
18.01	RFC: Definition of "adverse environmental impact"	4229
18.01.01	UWAG definition of "adverse environmental impact"	4295
18.01.02	PSEG definition of "adverse environmental impact"	4384
18.01.03	RFC: EPA 1977 definition of "AEI"?	4387
18.01.04	RFC: Alternative definition of "AEI"	4390
18.02	RFC: Use of previous demonstration studies	4395
18.02.01	PSEG recomm. for using previous studies	4446
18.02.02	UWAG recomm. for using previous studies	4449
18.03	Process for determining site-specific BTA	4451
18.03.01	Follow 1977 Guidance	4457
18.03.02	Sample site-specific rule	4460
18.03.03	UWAG approach for determining site-specific BTA	4462
18.03.04	PSEG approach for determining site-specific BTA	<no comments>
18.04	RFC: Role for fish & wildlife agencies for site-specific	4464
19.0	Dry Cooling	4467
20.0	Role of Trading	4480
20.01	RFC: Should EPA include impingement trading?	4488
20.02	RFC: Would trading afford greater protection?	4515
20.03	Spatial scale for entrainment trading	4519
20.04	RFC: Potential trading units/ credits	4536
20.05	RFC: Include Phase I facilities in trading program	4553
20.06	Voluntary adoption of trading by States and Tribes	4559
20.07	RFC: Harmonize of permit reissuance with trading	4562

---National Pollutant Discharge Elimination System---
Regulations Addressing Cooling Water Intake Structures
for Phase II Existing Facilities

TABLE OF CONTENTS

By Subject Matter

Subject Code	Description	Page
20.08	RFC: Challenges of implementation of trading	4568
21.0	Implementation	4572
21.01	Submittal of required information	4578
21.01.01	Source water physical data	4600
21.01.02	CWIS data	4606
21.01.03	Cooling water system description	4608
21.01.04	Comprehensive demonstration study (7 parts)	4610
21.02	Director's role in determining requirements	4660
21.03	Monitoring requirements	4666
21.04	Determination of compliance	4710
21.05	Role of States and Tribes (alt./equiv. programs)	4832
21.06	Other federal statutory requirements	<no comments>
21.06.01	Implications for nuclear facilities	4868
21.07	Alternative site-specific requirements	4884
21.08	Burden on permitting agencies (general)	4887
21.09	Permit applications/implementation schedule	4917
22.0	Administrative Requirements	5048
22.01	Executive Orders (except EO 13211)	5056
22.02	SBREFA requirements	5063
22.03	Other regulatory requirements	5073
22.04	Confidential Business Information	<no comments>
22.05	Burden (facility information collection)	5085
22.06	UMRA/Impacts on local governments	5092
23.0	Additional Document References	<no comments>
23.01	EBA related comments	5107
23.02	TDD related comments	5130